

Serial No.: 10/784,577

Examiner: M. SHINGLETON

Title: METHODS AND APPARATUS FOR AMPLIFICATION IN HIGH TEMPERATURE ENVIRONMENTS

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Amendments to the Claims:

This listing of claims will replace all prior versions and listings of claims in the application.

Listing of Claims:

1-25. (canceled)

26. (currently amended) A buffered field effect transistor logic (BFL) level-shifting/inverter circuit comprising:

an inverter stage input;

an NMOS depletion mode inverter responsive to said inverter stage input to produce an inverted output;

a buffered field effect transistor logic (BFL) stage coupled to the inverted output and comprising a first NMOS depletion mode field effect transistor (FET) having a first gate and an associated first channel, a second NMOS depletion mode FET having a second gate and an associated second channel, and a voltage drop circuit electrically connected in series between said first channel and said second channel;

a first output at a first electrical node between said voltage drop circuit and said first channel, wherein said circuit is fabricated on a silicon carbide substrate; and

a second output at a second electrical node between said voltage drop circuit and said second channel, wherein said second electrical node is configured to transmit a first chopping signal to a first chopping circuit other than said BFL level-shifting/inverter circuit in response to a clock input signal received at the inverter stage input, said first electrical node is configured to transmit a level-shifted chopping signal to a second chopping circuit other than said BFL level-shifting/inverter circuit in response to the clock input signal received at the inverter stage input, and wherein the level-shifted chopping signal is a level-shifted replica of the chopping signal generated by shifting a

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voltage level of the first chopping signal, and further wherein the BFL level-shifting/inverter circuit comprises solely NMOS depletion mode based devices.

27. (withdrawn) A circuit in accordance with Claim 26, wherein said first output is configured couple to a chopping circuit configured to chop a signal based on a signal received at said first output.

28. (currently amended) A buffered field effect transistor logic (BFL) level-shifting/inverter circuit comprising:

an inverter stage input;

an NMOS depletion mode inverter responsive to said inverter stage input to produce an inverted output;

a buffered field effect transistor logic (BFL) stage responsive to said inverted output, said BFL stage comprising a first NMOS depletion mode field effect transistor (FET) having a first gate and an associated first channel, a second NMOS depletion mode FET having a second gate and an associated second channel, and a resistor electrically connected in series between said first channel and said second channel;

a first output at a first electrical node between said resistor and said first channel;
and

a second output at a second electrical node between said resistor and said second channel, wherein said circuit is fabricated on a silicon carbide substrate, wherein said second electrical node is configured to transmit a first chopping signal to a first chopping circuit other than said BFL level-shifting/inverter circuit in response to a clock input signal received at the inverter stage input, said first electrical node is configured to transmit a level-shifted chopping signal to a second chopping circuit other than said BFL level-shifting/inverter circuit in response to the clock input signal received at the inverter stage input, and wherein the level-shifted chopping signal is a level-shifted replica of the chopping signal generated by shifting a voltage level of the first chopping signal, and

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further wherein the BFL level-shifting/inverter circuit comprises solely NMOS depletion mode based devices.

29. (previously presented) A circuit in accordance with Claim 28 configured to operate with a negative direct current (DC) bias on each said gate with respect to each said associated channel.